

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1233300, CST 10:24A 373/4

SC Jim's going to leave the helmet off now for the rest I think. It's getting a little anoxic in there. These helmets don't have face plates, and we have a difficult time breathing with that on.

PAO This is Apollo Control Houston. The ground readings do show that the cabin temperature is a bit on the high side. We read 79 degrees F, a little warmer than normal. You heard the crew make a remark about miles per gallon for the service propulsion system engine. The reference here, obviously to the trans earth injection burn, which put them on their path back to earth after orbiting the moon. We haven't had a chance to check our numbers to see what the mile-per-gallon figure might be, but we rather suspect it is a world record. So at 123 hours 42 minutes into the flight of Apollo 8 this is Apollo Control Houston.

END OF TAPE

PAO This is Apollo Control at 124 hours 19 minutes into the flight of Apollo 8. Apollo 8's current altitude reads 109,929 nautical miles above the earth. Our current velocity reading is 5,641 feet per second. Since our last report we've talked to the Apollo 8 spacecraft, spacecraft Frank Borman and Jim Lovell, on a range of subjects and we will pass those along.

CAPCOM - okay, Jerry, that completes the P-23. Did you have something else you want us to do now? You wanted to check on something from the last sep.

CAPCOM Roger, Frank. We need to get some numbers that we weren't able to copy down here. Stand by just one. Frank, on your first P-23, we missed three marks on star number 2. We missed mark number 3, trunnion.

SC Okay, Three trunnion is 05650.

CAPCOM Okay, 05650. Then star number 1, mark two. We need the trunnion on that one too.

SC 04216.

CAPCOM And on star number 1, mark three, the delta R and delta V.

SC Delta R is 00006, delta V 00001.

CAPCOM Roger, 4 balls 6 and 4 balls 1. Okay, Frank, your PTC attitude is pitch 180, yaw 315, and roll rate .3 degrees per second. The reason for wanting to point it north is not because we are concerned at all about any changes due to venting, in-as-far as we can tell, no affects on your trajectory by venting, we just want to try out that direction on it.

SC That's fine. We are going to stay in for about 2 more seconds while Jim takes the pictures for the sextant for the optics people.

CAPCOM Okay, Frank, and then also, we are looking for a fuel cell 02 purge, when you get a chance.

SC That's right. I've got the word now it's supposed to be at 12430.

CAPCOM Right.

SC Okay, we will do it.

CAPCOM Apollo 8, Houston.

SC Go ahead.

CAPCOM Roger. For your P-37 that's coming up that you are going to run, use a midcourse 7 time of 14446, also just a little note here, the trajectory is looking so good, it looks like you can make the corridor without even making a midcourse 7.

SC Roger. 14446 for the P-37.

CAPCOM Affirmative.

SC Thank you.

SC Jerry, this is Jim.
CAPCOM Go ahead, Jim.
SC We are going to set this up for the normal PTC mode for a few minutes until Frank gets through with the - another step of the call.
CAPCOM Roger, Jim. When the time is auspicious would you shift the biomed switch over to left side?
SC I think we ought to shift it over right now.
CAPCOM Okay. No, they say hold it up for a little while.
SC - so you can see, it's the same data that Dr. Berry has got on me in Gemini 7, and also good for Frank on Apollo 8.
CAPCOM Roger, he heard that.
CAPCOM Apollo 8, Houston.
SC Do you see that program alarm we got when we went through P-37, 1302.
CAPCOM Affirmative.
SC Let's do it again and see what happens here.
CAPCOM Roger. We are monitoring.
CAPCOM Apollo 8, Houston.
SC Go ahead.
CAPCOM Looks like you loaded the wrong time in P-37, you should load 14446 for your midcourse time. Look like you loaded 14646.
SC Okay. I'm sorry. Yes, I have it here. I loaded 14646, okay.
CAPCOM Roger.
SC I guess the best way to terminate this is by going back to 2, is that right?
CAPCOM Affirmative.
FAO This is Apollo Control Houston. The midcourse correction number 7 referred to in the conversation exchange is that if the entry interface minus 2 hours, or 2 hours before the spacecraft is due to reenter the earth's atmosphere. And this would - consistent with an entry interface time of 14646 minutes would read 14446 minutes, so the reference to P00 is program 00 aboard the computer, the onboard computer. So at 124 hours 24 minutes into the flight of Apollo 8, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1244700, CST 11:38A 375/1

PAO This is Apollo Control Houston, at 124 hours, 47 minutes into the flight of Apollo 8. The altitude of Apollo 8, at this time, 108 386 nautical miles above Earth. Present velocity, 5690 feet per second. The Apollo 8 spacecraft, now returning to a passive thermal control attitude, this one of three-tenths of a degree per second. We will play conversation with Apollo 8 now.

SC Houston, Apollo 8. It looks like a plus .8 per second correction at midcourse 7.

CAPCOM Roger, Jim.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, GO.

SC Started the fuel cell purge and I'm going to 18350 and I'll start that three-tenths of a degree per second roll and stabilization test for you.

CAPCOM Roger, thank you.

SC Okay, there we are and we are going to start rolling now.

CAPCOM Roger. Frank, on this free pitch and yaw, if either one of them gets outside of 15 degrees from the nominal values, we'll call it off.

SC Okay.

CAPCOM Apollo 8, Houston. I would like to have the bio-med switch left now, if you can.

SC Roger, it's left. The fuel cell purge, wait - 02.

CAPCOM Say again, Apollo 8.

SC 02 fuel cell purge complete.

CAPCOM Roger, thanks.

PAO This is Apollo Control Houston. As you heard the purge of the fuel cells, part of our nominal time lines in the flight plan has been completed. The latest roll in the passive thermal control, a bit above the nominal mission plan, but is being done more to acquire additional data in this mode. The nominal mission plan being one-tenth of a degree per second, this some variance from that roll rate. Apollo 8 has passed that point in the mission incidentally for possibilities of an Atlantic Ocean splash or for an Indian Ocean splash. Therefore, recovery in Mission Control Center is now passing along the official word that recovery forces in those areas may be withdrawn. So at 124 hours, 50 minutes into the flight of Apollo 8, this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1251900, CST 12:10a 376/1

PAO This is Apollo Control Houston 125 hours and 19 minutes into the flight of Apollo 8. Apollo 8 continuing its descent, its trip back to earth. The altitude is now registering 106,615 nautical miles away, velocity now reads 5748 feet per second. We have had some discussions with Apollo 8 which we will play now.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston, Apollo 8.

CAPCOM Looks like you've exceeded your 15 degrees offset PTC attitude, so you can go to attitude hold and pitch and yaw.

SC Okay, I'll go back to that. We didn't even get around once, did we?

CAPCOM Doesn't look like it. So much for spin stabilization.

SC Well, we tried that several times last night, 1 then the half, then 2 -- I think there is the phenomena known as inertial coupling that has something to do with that.

CAPCOM Roger, that could be.

SC Put a bigger rudder on it.

CAPCOM Need some feathers, Frank.

SC Yeah.

CAPCOM Apollo 8, Houston. On the P-37 comparison, using the midcen vectors, we get a minus 1.4 on that midcourse, compared to your 2.8. We ran your solution through our computer and we also get a 2.8, so your P-37 looks good. We are busy still fiddling with the vectors and comparing them and we will keep an eye on the difference.

SC Roger. Looks like we came up with plus 2.8 though, and you said you came up with a minus something.

CAPCOM Affirmative. Jim, that 4 feet per second difference is worth 28 degrees on the flight plan angle.

SC Roger, thank you.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston.

CAPCOM Roger, Frank. How is your cabin temperature looking now?

SC It's getting cooler, thank you. We put those shades up and that really helped.

CAPCOM Okay. The primary loop down here still looks real good, so it looks like you are in fine shape. Your battery B charge ought to be done by about 127 hours and we think you shouldn't even try to charge battery A, since it looks like at entry interface it is going to have 38 amp hours on it.

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SC I'll tell Bill that.

CAPCOM Okay.

SC How is the weather down there, Jerry?

CAPCOM That's loud and clear.

SC Cold?

CAPCOM No, it's pretty balmy around here today.

Yes, the temperature is about in the 70s here. It's a real nice day.

SC Fine. Say, Jerry, last night Jim was saying something about turning on VHF display about 20 000 miles out. I wrote it down, but I can't seem - I don't know where I put it. (garbled)

CAPCOM roger, Frank. we've got it in the checklist here as right around 4 hours before EI, right after your nominal P23 P37 onboard comparisons, AB-1.

PAO Apollo Control Houston, so there we have it. That was Capsule Communicator Jerry Carr carrying on conversations both with Spacecraft Commander Frank Borman and Command Module Pilot Jim Lovell. The passive thermal control test referred to, this at .3 of a degree per second roll showed perhaps greater deviation in pitch and yaw than the slower rate did. We did the exercise at .3 versus the nominal .1 to see if we would get spin spabilization out of it. We did not. We terminated the test within 10 minutes after it started. As you heard Frank Borman reported that he had tried a slightly higher spin rate yesterday evening. The P37 referred to is the onboard computer program or return to earth program. There you heard Jim Lovell comparing notes with the ground, so at 125 hours 24 minutes into the flight of Apollo 8 this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1255100, CST 12:42P 377/1

PAO This is Apollo Control Houston at
125 hours 51 minutes into the flight of Apollo 8. Apollo 8
now 104 816 nautical miles above the earth, current velocity
5808 feet per second. We've only had brief contact with
Apollo 8 since our last report and we will play that for
you now.

CAPCOM Apollo 8 Houston.

SC Go ahead.

CAPCOM Roger, we're showing some garbage on
your computer. If you will hit error reset we can clear
that program alarm so the next one can be identified. Over.

SC We don't have any program alarm.

CAPCOM I think this is a carry over from your
last program alarm there, on that P37.

SC Okay. Error reset. Thank you.

SC Did that do it?

CAPCOM Stand by. Okay, thank you Frank, that
did it.

SC Roger.

PAO Apollo Control Houston, as means of
clarification in our conversation with Commander -
Spacecraft Commander Frank Borman just prior to this con-
tact he did indicate that the cabin temperature was much
cooler, much more comfortable than they had seen a bit
earlier today, and at 125 hours 53 minutes into the flight
this is Apollo Control Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET12622, 113p, 378/1

PAO This is Apollo control, Houston, at 126 hours 22 minutes, now into the flight of Apollo 8. At the present time the Apollo 8 spacecraft 103 065 nautical miles away from Earth, current velocity reads 5868 feet per second. Since our last report we have had only one brief contact with Apollo 8, this being a communications test, but since some 20 plus minutes have elapsed since that time, we thought we would play that tape for you.

CAPCOM Apollo 8, Houston, comcap.

SC You are loud and clear, Houston.

CAPCOM Roger.

PAO And that is the end of the tape at 126 hours 23 minutes into the flight, this is Apollo control Houston.

END of TAPE

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APOLLO 8 MISSION COMMENTARY, 12/26/68, GET12652, 144p, 379/1

PAO This is Apollo control, Houston, at 126 hours 52 minutes now into the flight of Apollo 8. The current altitude above the Earth of Apollo 8 reads 101 319 nautical miles, present velocity now 5929 feet per second. We have had some conversation with Apollo 8, which we are going to punch up now.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston, Apollo 8.

CAPCOM Roger, your battery is full, you can terminate charging, you've got 40 AMP hours on it now and we've got a couple of requests for data here.

SC Okay, we were just talking about that, I told Bill stop - what are your requests?

CAPCOM The first one is - the first time somebody is down in the equipment bay we would like to get another reading on your RCS temperature, those six temperature readings and one of the boys in the back -

SC Want me to read them again?

CAPCOM Beg your pardon?

SC We just read the RCS thruster temperatures again and they are all pegged high.

CAPCOM Okay, good deal, Frank. The other one is, the boys in the back room would like some time when everybody is awake, if you would fire up both cabin fans for about five minutes, they would like to see what the Delta temperature is on the telemetry when you get the stagnation broken down and get some flow going over it, so if you can see your way clear to do that we would like to see it some time when everybody is up.

SC We had that running before the flight, did they check it then?

CAPCOM You mean early in the game, when you were cool.

SC Yes, when we were cool, right.

CAPCOM Yea, they got that data and they were kind of interested in seeing what it looks like when the cabin is nice and warm and the temperature indicator is reading on the high side, to see how the Delta works in the other direction.

SC Okay, coming on.

CAPCOM Okay, thank you.

SC What else, Jerry?

CAPCOM That's it, Frank. Another thing, Frank, is we just want to remind you that there is no charge needed on A battery.

SC Hey, listen these cabin fans - one of them sounds like it's got a bad bearing, we are going to turn it off, it's got a real squeal to it.

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CAPCOM Okay, Frank.
SC Sounds like it's got something in it.
CAPCOM That must be Bill's teddy bear.
SC Say again.
CAPCOM That must be Bill's teddy bear.
SC I don't know, but there is something
in there. We will try them again, one at a time, and see
if we can determine which ones got the noise.
CAPCOM Roger.
SC Number 2 is really bad. It's got a
bad bearing and it whines like mad, so we are not going to
turn it on.
CAPCOM Roger, thank you.
SC We are not going to try number 1 either,
there may have something, might have got in both of them.
CAPCOM Okay, Frank, that's fine.
SC Sounds like that MG starter of yours.
CAPCOM I'm afraid to turn my starter on now,
it's been so long.
PAO Apollo control, Houston, so Frank
Borman reports a noisy cabin fan. Incidentally on the
ground, we are not necessarily suprised by this report,
noisy fans have shown up in some of the earlier spacecraft
and at 126 hours 56 minutes into the flight, this is
Apollo control, Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1271847, CST 2:11p 380/1

PAO This is Apollo Control Houston at 127 hours, 19 minutes into the flight of Apollo 8. The Apollo 8 spacecraft at this time, less than 100 000 nautical miles away from Earth. We read 99 802 nautical miles, the distance that separates Apollo 8 from Earth. Current velocity, 5983 feet per second. We've been talking and are still talking to spacecraft commander Frank Borman, regarding his upcoming TV pass, at 128 hours GET. We are going to switch over to that conversation now.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, GO.

SC Roger, we would leave the PTC long enough to go orient toward the Earth for a TV shot to see if this TV thing is going off on 128.

CAPCOM Roger, Frank. That is fine. Do you have the gimbal angle on what you need?

SC Yes, thank you. I got them earlier today.

CAPCOM Okay.

SC (garble)

CAPCOM Say again, Frank. You are getting pretty garbled.

SC How is that antenna?

CAPCOM Loud and clear, Frank.

SC I said, will this be a short one, we are trying to hurry things up a little bit to see if we can get as much sleep as possible.

CAPCOM Roger.

CAPCOM Apollo 8, Houston. Would you put the bio-med switch on the right side now, please.

SC Roger.

CAPCOM Frank, do you intend to start your TV before 0128.

SC Negative, No.

CAPCOM Roger.

SC That is what you wanted, isn't it. I thought that is what it was all squared away for.

CAPCOM Affirmative.

CAPCOM Apollo 8, Houston. Do you plan on using the wide angle lens?

SC I think that would be best.

CAPCOM Okay, Jack you want to be sure and use the red filter and the filter holder for that one. It takes a little darker filter.

SC Okay. Do you want to take both red filters on there or just the one for the filter holder?

CAPCOM He thinks just the red one on the filter holder will do, but might not hurt to have the other one ready, just in case.

SC How about if we use the telephoto, it

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SC will be a little harder to focus, but it might end up better, picture.

CAPCOM Roger, Frank. If you want to use the telephoto lens, you ought to use the same combination you used going out, 25A.

SC Okay.

PAO This is Apollo Control Houston. We are switching over to conversation now in progress.

SC (garble)

PAO It appears that the discussion at present is going a little slow. That was Frank Borman, reconfirming by the way, our television time at ground elapse time of 128 hours.

COMM TECH Houston, we will be handing over to Goldstone in 2 minutes, over.

PAO Goldstone will acquire in 2 minutes. That is a prime site for this television period. We are about 37 minutes away, from our time, for television. Standing by continuing the monitor, this is Apollo Control Houston.

END OF TAPE

PAO Apollo Control Houston 127 hours 29 minutes now into the flight of Apollo 8. The spacecraft is presently 99,211 miles above the earth, its velocity 6,005 feet per second. We are not exceeding the 6,000 feet per second mark. We've have had further discussions with Apollo 8, Capsule Communicator Jerry Carr talking with both Frank Borman and Jim Lovell. Let's pick up some of those conversations.

CAPCOM Frank, the doctors say they are not getting anything on Bill yet. He is apparently not plugged up.

SC He is out underneath the couch getting some stuff out, he doesn't have his umbilical on.

CAPCOM Okay.

SC Look at the stuff they got yesterday. He hasn't changed at all. Houston, do you read?

CAPCOM Roger.

CAPCOM Hey, Frank, this simulation has really been great. What do you say after these photos we recycle back to TLI again?

SC That's fine. Bring on the vacuum.

SC Hey, Jerry, yesterday (garble)

CAPCOM Jim, we missed that. Say again when you get a better antenna.

SC (garble)

CAPCOM Apollo 8, Houston. We are not reading you. Stand by one.

SC Houston, do you read now?

CAPCOM Roger, loud and clear.

SC I say, Bill will be ready in a minute, he is cycling back and forth under the couch trying to get the TV stuff out.

CAPCOM Okay.

CAPCOM Backup crew says they are ready to go.

SC Great. A most fantastic voyage.

CAPCOM Sure was.

SC We're not through yet. We've still got a 100,000 miles to go. You know, we kind of feel like is not all over with until you get out of it, it's still a long way.

SC Lovell Jerry, what I was saying before, I tried to hurry up the voyage home by calling up program 01 to get us back on the path, but it didn't work.

CAPCOM Well, that's the best excuse I've heard so far, Jim.

SC The best of many.

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PAO Apollo Control Houston. Bill Anders apparently now unstowing the television gear for the upcoming period of TV. I have some of the earlier communications on that discussion - were a bit noisy and you may have missed an earlier made by Capsule Communicator Jerry Carr when he said, "Gee, the simulation is really great, why not recycle back to TLI" referring of course to the reignition of the S-IVB which sent the Apollo 8 spacecraft to lunar distance. Apollo 8 retorted, "Send the backup crew." A later report indicated that the backup crew was indeed ready, so at 127 hours 33 minutes into the flight of Apollo 8, continuing, this is Apollo Control Houston.

END OF TAPE

PAO This is Apollo control, Houston, at 127 hours 44 minutes into the flight of Apollo 8. The Apollo 8 spacecraft at this time 98,361 nautical miles above Earth, its velocity exceeding 6000 feet per second. We have had some conversations with - further conversations with both Frank Borman and Jim Lovell, Bill Anders apparently still out of his seat, getting ready for television and we are going to pass those on now.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston, Apollo 8.

CAPCOM Roger, Frank, on TEI, you burned 1480 gallons.

SC Thank you.

CAPCOM Frank, you going to need Jim's slide rule for that calculation.

SC I got 162. - Houston, Apollo 8.

CAPCOM Apollo 8, Houston, GO.

SC Rog, this is one of those rare occasions where Bill left his seat and I am now sitting in it and - for the first time I can see the Earth. I'm looking through his binoculars, it's pretty nice.

CAPCOM Roger.

SC You had a little weather today it appears.

CAPCOM Last word from the weather guys here said it was clear.

SC Well, we could see South America and Florida and the lower part of the U.S. Looks like there is a weather front going over into the central part of the United States, low and clouds over the northwest area. Florida is clear, it looks like the east coast is pretty clear.

CAPCOM Roger, clear, but cold.

SC Lot of clouds up in Canada.

CAPCOM Maybe the geese will go home.

SC Jerry, we are going to turn around and see how the picture is.

CAPCOM Roger. - Nothing yet, Frank.

PAO This is Apollo control, Houston, we're -

SC Any luck yet, Jerry. How's it look.

CAPCOM We are seeing about half of it. You moved in the wrong direction. Okay it's coming back, a little more. Good, now a shade toward the terminator. A little bit more toward the terminator and the same direction you were moving it before. - Right, you have got it centered right in the middle. - Now move it away from the terminator just a bit. Good picture.

SC Okay, you want us to wait until 128, right.

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CAPCOM Affirmative, Frank, move your camera to the right, I want to see which way the Earth moves on my screen. Okay, moving your camera to the right, moves the Earth to the left on my screen. On our screen the terminator is almost parallel to the horizontal direction and the dark part is on the top.

SC Okay, we will turn it back on at 128.

CAPCOM Okay, Frank.

PAO This is Apollo control, Houston, we have just picked up a final dress rehearsal for the actual television scheduled at 128 hours ground elapsed time. We will be back in about 12 minutes with that picture.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1275106, CST 2:42P 383/1

PAO This is Apollo Control Houston at 127 hours 51 minutes. At the present time we are about 9 minutes from when we have the full scale television show. You had a preview of what we might see, mainly a very good view of the earth. We've had a few additional conversation - very limited conversation I should say, since that picture came on your screen, and we will play that conversation now.

CAPCOM What beam width are you on Apollo 8?

SC Narrow.

CAPCOM Roger, Narrow.

SC This is Apollo 8. Do you read?

CAPCOM Apollo 8 Houston, loud and clear.

SC Roger, radio check.

CAPCOM Roger.

SC Houston, Apollo 8. How do you read now? Over.

CAPCOM Apollo 8 Houston, loud and clear.

SC Roger, we're just trying something -

PAO This is Apollo Control Houston. Our current altitude on Apollo 8 is 97 847 nautical miles above the earth. Current velocity is 6055 feet per second, so at 127 hours 53 minutes, standing by, this is Apollo Control

END OF TAPE

PAO Apollo Control Houston 127 hours 57 minutes. We've had some updated conversations with the crew which we are going to put on before we pick up the next television.

CAPCOM Apollo 8, Houston. You are in the scan limit right now on the high gain antenna although you may have narrow beamwidth selected, you are in wide. To improve the situation would take a pitch down and a yaw left and we will have FAO check it and give you some angles if we need to change it.

SC We just got out of the scan limit by pitching up and yawing right.

CAPCOM Roger, you are right, Frank.

SC Are we still in wideband or are we in narrowband now?

CAPCOM We are checking.

CAPCOM Apollo 8, Houston. The comm says you are in good shape now.

SC Okay.

CAPCOM Apollo 8, Houston. Comm check.

SC Loud and clear.

CAPCOM Roger.

PAO This is Apollo Control Houston. Our current altitude reading 97,507 nautical miles above earth. Current velocity 6,068 feet per second. This coincides very closely with the numbers we passed up earlier to Frank Borman this morning when he asked about the television pass. It was indicated at that time at an altitude of 97,413 nautical miles should be our time, should be our distance at time of acquisition, and a velocity of 6,072 feet per second. We are very close to reaching both of those marks. We are less than a minute away from our anticipated time for television. Goldstone will be our station acquiring. You had a preliminary dress rehearsal glance at what we should see. It could be described as a promo to this the sixth television pass mission during Apollo 8. So we will stand by at this time and look very closely at our television monitors to see when we will acquire a picture. We should be some 15 seconds away. No picture yet, but we are waiting with some anticipation. The earlier glimpse we had indicated a very beautiful view of the earth, one that Jim Lovell had described a few minutes earlier as he looked out Bill Anders window. No picture yet, but we are standing by watching. Okay, we will switch over for any conversation that might come up with the crew and standing by at this time. A bit overdue at this time on our TV transmission, but we have not placed a

call yet to the spacecraft. Capsule Communicator Jerry Carr down at his console, just as we are doing, viewing the screen. Picture coming through.

SC Roger, how's the picture?

CAPCOM Roger, the picture is on the lower right hand of our screen.

CAPCOM Camera should go down away from the terminator and to the right.

CAPCOM Still down, and about the same place. A little worse. Now it's coming in.

SC Are you getting it now, Jerry?

CAPCOM Roger. We've got most of it, keep moving off to the right. Good, you have it centered right now.

SC Well, the earth looks a little bigger to us today, not much, but it's somewhat bigger. I'm sitting over the right hand seat now, Bill has got the TV camera, Frank helping him out aiming it at the earth. I hope we have a good picture. Can you see the clouds?

CAPCOM Affirmative, we sure can. Move it up toward the terminator, correction, away from the terminator just a shade.

SC At the tip of South America, there is a great swirl of clouds down there. It looks like a great storm. I wonder if you can see it.

CAPCOM Roger. We see a large swirl just south of the terminator.

SC Roger. And then up to the left hand side, or towards the north, we can see the light waters around the West Indies, and we can actually see Florida. I'm looking through Bill's binoculars and I can the various land masses, South America, and the central part, and southern part of the United States.

CAPCOM Roger. Move a little bit away from the terminator now. A little left with the camera and a little

SC Say it again, Jerry.

CAPCOM Okay, You're moving it toward the center of the screen now and the earth is off on the left side of our screen. Real fine. That's good. Hold it right there.

SC What we're thinking about right now, Jerry, is getting a wedge angle, about 2 degrees their limit. As we come back the earth looks pretty small from here.

CAPCOM Roger. This view from earth, with the telephoto lens at some 97 000 nautical miles.

SC Ken, on the earth here you're a little far out in space. I think I must have the feeling that the travelers in the old sailing ships used to have. Going on

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a very long voyage away from home and now we're headed back and I have that feeling of being proud of the trip, but still still happy to be going back home and back to our home fort. And that's, that's richer than being right here.

CAPCOM Roger, Bill. We'll sure be glad to get you back, too.

SC This is Frank Borman. We've enjoyed the television shows and we'd like you stay tuned in in the future because there'll be flights and rendezvous and earth orbit, and then, of course, there'll be television from the lunar surface itself, in the not too far distant future. So, until then, I guess this is the Apollo 8 crew signing off and we'll see you back on that good earth very soon.

CAPCOM Roger, Frank, adios.

PAO So that, our last television transmission before the Apollo 8 crew returns to earth at 128 hours, 5 minutes at the present time. And right now we show an altitude above earth of 97 073 nautical miles. The velocity as the spacecraft, Apollo 8, now on its return trip, a velocity of 6084 feet per second. So at 128 hours, 6 minutes into the flight of Apollo 8, this is Apollo Control, Houston.

END OF TAPE

FAO This is Apollo Control Houston, at 128 hours, 21 minutes, now into the flight of Apollo 8. The Apollo 8 spacecraft, now 96 149 nautical miles above Earth. Its velocity now reading 6119 feet per second and accelerating as it returns at an increasing velocity towards the Earth. Among those interested viewers in Mission Control Center watching the television pass, or perhaps we should say passes, was Mrs. Marilyn Lovell, along with two children, Jay and Barbara. We've had discussion with Apollo 8 since that time, since the time of the television transmission and we'll pass along those conversations now.

CAPCOM Apollo 8, Houston.

SC Go ahead.

CAPCOM We'd like you to go back to PPC. Pick either attitude that's easiest to fly to.

SC Roger. It's in work.

CAPCOM Apollo 8, Houston.

SC Go ahead, Houston, Apollo 8.

CAPCOM Roger. Your PTC attitude ought to be either a 1045 or a 18315. We'd recommend 18315. That will keep your windows out of the sun.

SC 180, that's right. I got them mixed up, didn't I? It's 18315.

CAPCOM Roger.

SC (Too much static to be understood).

CAPCOM Apollo 8, this is Houston. You're unreadable due to background noise. Over.

SC How, now, Jerry?

CAPCOM Loud and clear.

SC I say we're starting to stow the spacecraft and get all squared away and then be sleeping and eating we'll be all thinking about entry from now on.

CAPCOM Roger, Frank. And now that Bill's up we'd like to get a redundant components check.

SC All right. He's putting helmets in the food boxes, just a minute, I'll get him to do it for you.

CAPCOM Roger.

CAPCOM There is no great hurry, Frank, we're -

SC (interrupted)

CAPCOM We're mostly interested in looking at the secondary loops.

SC That's what I was going to say. I can't see any reason to check anything other than the secondary loop, can you?

CAPCOM That's affirmative.

SC Now in our cabin, the cold soak equipment, we won't have any cabin fans.

CAPCOM Roger. I understand.

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1282100, CST 3:18p 385/2

SC Jerry, this is Apollo 8.
CAPCOM Apollo 8, go.
SC Rog. I just got on the sextant and now
looking at Texas and the weather man is right, it looks like
a pretty good day. Full of clouds down there, but not bad.
CAPCOM Real fine, Jim.
CAPCOM Can you see the kids out in the yard
waving?
SC Would you tell Pete Conrad to get his
kids off my roof?
CAPCOM Wilco.
CAPCOM Jim, do you see the bright spot out in
the Pacific Ocean through the sextant?
SC I'll try. We saw it, of course, through
the windows and through the binoculars. I'll see if I can
spot it.
CAPCOM Roger.
SC Yes, Jerry, I can see the bright spot.
It's - I guess it's the sub solar point. It's off of South
America. It appears to be - it is a grayish spot compared
to the blue waters surrounding it. It's undefined in diameter,
though, I mean, it's not a clear round spot at all, it's just
a raggedy one.
CAPCOM Roger. That showed up real well on the
TV's picture.
CAPCOM Apollo 8, Houston. We'd like to delay
that request for a secondary loop check to a little better
point as far as drifting is concerned.
SC Fine. We can wait for a long time on
that.
CAPCOM Okay.
CAPCOM Apollo 8, Houston.
SC Go ahead, Houston.
CAPCOM Roger. Jim, we've got some bird watchers
in the viewing room.
SC Bird watchers, huh?
CAPCOM Roger.
SC Sounds good. Who are they?
CAPCOM Marilyn.
SC Oh, well good. Say hello to her for me.
CAPCOM Yes, and she's got a few troops with her
too.
SC Did she see the TV, I'm wondering?
CAPCOM Affirmative. Barbara and Jay are with
her.
SC Good.
PAO This is Apollo Control, Houston, at
128 hours and 27 minutes and standing by continuing to monitor.

END OF TAPE.

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1264800, CST 3:37 386/1

PAO This is Apollo Control, Houston at 128 hours 46 minutes into the flight of Apollo 8. The Apollo 8 spacecraft at this time is 94 676 nautical miles above the Earth, velocity at this time 6176 feet per second. We have a couple of minutes conversation with the crew that we'd like to play to you now.

CAPCOM Apollo 8, Houston. We're replaying your television pictures now. We can see the Chilean coast and Florida.

SC Very good. That's a pretty good little television camera, isn't it?

CAPCOM It sure is. With the right filters on it, it's great. That was a shock input.

SC He must be a Jack of all trades.

CAPCOM Beautiful.

SC Houston, Apollo 8.

CAPCOM Apollo 8, Houston, go.

SC Bill would like to ask the friendly Flight Surgeon's permission to take a Seconal so he can sleep.

CAPCOM Roger, copy. Apollo 8, Houston, that's a yes. Apollo 8, Houston.

SC Go ahead.

CAPCOM Roger, before Bill falls asleep, we'd like to have him go ahead and do that secondary evap check now at anytime at his convenience, and if we don't happen to be - we'll monitor it with high bit rate, just let us know when you did it.

SC Roger, I'll tell him that evaporator check at any time.

CAPCOM Roger. Apollo 8, Houston. Biomed switch to the GDR, over.

SC Roger, in works.

PAO This is Apollo Control, Houston at 128 hours 49 minutes into the flight. We're coming up on a change of shift here very shortly. The black team of change of shift briefing now scheduled for 4:15 p.m. in the big auditorium. Our participants for this news conference will include Flight Director, Glen Lunney, his Retrofire Officer, Jerry Bostick, Major General Vincent G. Houston, DOD manager for Manned Spaceflight Support Operations, and Mr. Jerome Hammack, Chief of the Landing and Recovery Division of the Manned Spacecraft Center. And this is Apollo Control, Houston.

END OF TAPE

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1290500, CST 3:56a 387/1

PAO This is Apollo Control, Houston, at 129 hours, 5 minutes now into the flight Apollo 8. Here in the Mission Control Center the green flight control team coming aboard very shortly. The previous shift, or our shift I should say, the members of the black team currently briefing their counter parts on what our status is as of this time. At the present time the Apollo 8 spacecraft a 93 527 nautical miles away from earth. Current velocity reads 6221 feet per second and accelerating. We'll switch now to some conversations between our capsule communicator, Jerry Carr, and the Apollo 8 spacecraft.

SC Houston, Apollo 8 over.

CAPCOM Apollo 8, Houston go.

SC Good afternoon, Jerry.

CAPCOM Howdy.

SC Okay, somebody said something about checking out the evaporator, evaporators. What do you want to do?

CAPCOM Roger. Before we get too far along, we'd like to see essentially with the secondary evaporator check that we got any redundant components to check.

SC Okay, standby.

CAPCOM Roger. E Com says to be sure and let it go for at least 5 minutes.

SC Roger. Now you want to check out the primary evaporator also or did you decide it's not necessary?

CAPCOM I guess it's not necessary, Bill.

SC Okay, secondary glycol loops coming on the line.

CAPCOM Roger, Bill.

SC And the secondary vaps coming on the line.

CAPCOM Roger.

SC And it's stabilized the leg, oh, for about 5 minutes.

CAPCOM Roger.

SC Now Houston, Apollo 8.

CAPCOM Apollo 8, Houston go.

CAPCOM Apollo 8, Houston go.

SC All right, what do you have in mind here in the way of activating the secondary loop prior to separation. It looks like if we do have a cabin fan problem we won't be able to do, full blowing cold smoke. Is there anything that we can do that'll do any good?

CAPCOM Well right now, Bill, in the check list we're showing this activation of about minus 1 hour. Let me check with ECOM for a minute and see if they got any more words considering the cabin fan situation.

SC Roger.

APOLLO 8 MISSION COMMENTARY, 12/26/68, GET 1290500, CST 3:56a 387/2

CAPCOM Apollo 8, Houston. Looks like a good time, one hour before entry interface would be fine.

SC Okay, it won't do any good (GARBLE)

CAPCOM Bill, standby. We've got alot of back ground noise. Go ahead now, Bill.

SC Read me now, Jerry?

CAPCOM Loud and clear.

SC Okay, this cold soak is built around the premise that you've got a cabin heat exchanger in my view, and if you haven't got a cabin heat exchanger I'm wondering just what you can do?

CAPCOM He's thinking. Apollo 8, Houston. We think it will still do a little bit of good so we just as soon go through with it.

SC Okay. Even bypassing the suit heat exchanger and that part of it too, huh?

CAPCOM That's affirmative.

SC Okay.

CAPCOM Also, Bill you're secondary loop is looking good.

SC Okay, this jets 5 minutes, I'll deactivate it now.

CAPCOM Roger.

SC Houston, Apollo 8, over.

CAPCOM Apollo 8, Houston.

CAPCOM Apollo 8, Houston, go.

SC Hey, Jerry, when do you want to crank up the VHF anyway?

CAPCOM Roger. VHF simplex, well we had that on the check list for about minus 4 hours.

SC Okay, we wanted to put it out prior to Max Raines, don't you think? Get an idea when we're picking it up?

CAPCOM Roger. Standby Bill, we'll talk about it.

PAO This is Apollo Control, Houston. Well that's the first we've heard from Lunar Module Pilot, Bill Anders for a while. He was, obviously, pre-occupied during the television pass. And at 20, uh, 129 hours, 11 minutes into the flight of Apollo 8, this is Apollo Control, Houston.